SEQUENCE LISTING

<110> Olandt, Peter J.
Meyers, Rachel E.
Galvin, Katherine A.
Millennium Pharmaceuticals Inc.

<120> 33945, A Human Glycosyltransferase and
Uses Therefor

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<151> 2001-02-15

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cgg gaa ctg cgg cgc ggc cgg gag gcg ctg ttg gtg ctc ctg gcg cta 161
Arg Glu Leu Arg Arg Gly Arg Glu Ala Leu Leu Val Leu Leu Ala Leu
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ctg gcg ttg gcc ggg ctg ggc tcg gtg ctg cgg gcg cag cgt ggg gcc 209
Leu Ala Leu Ala Gly Leu Gly Ser Val Leu Arg Ala Gln Arg Gly Ala
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ggg gcc ggg gct gcc gag ccg gga ccc ccg cgc acc ccg cgc ccc ggg 257
Gly Ala Gly Ala Ala Glu Pro Gly Pro Pro Arg Thr Pro Arg Pro Gly
45 50 55

cgg cgc gag ccg gtc atg ccg cgg ccg ccg gtg ccg gcg aac gcg ctg 305
Arg Arg Glu Pro Val Met Pro Arg Pro Pro Val Pro Ala Asn Ala Leu
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ggc gcg cgg ggc gag gcg gtg cgg ctg cag ctg cag ggc gag gag ctg 353
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80 85 90

cgg ctg cag gag gag agc gtg cgg ctg cac cag att aac atc tac ctc 401
Arg Leu Gln Glu Glu Ser Val Arg Leu His Gln Ile Asn Ile Tyr Leu
95 100 105

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Ser Asp Arg Ile Ser Leu His Arg Arg Leu Pro Glu Arg Trp Asn Pro

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ctg tgc aaa gag aag aaa tat gat tat gat aat ttg ccc agg aca tct   497
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gtt atc ata gca ttt tat aat gaa gcc tgg tca act ctc ctt cgg aca   545
Val Ile Ile Ala Phe Tyr Asn Glu Ala Trp Ser Thr Leu Leu Arg Thr
140                 145                 150                 155

gtt tac agt gtc ctt gag aca tcc ccg gat atc ctg cta gaa gaa gtg   593
Val Tyr Ser Val Leu Glu Thr Ser Pro Asp Ile Leu Leu Glu Glu Val
                160                 165                 170

atc ctt gta gat gac tac agt gat aga gag cac ctg aag gag cgc ttg   641
Ile Leu Val Asp Asp Tyr Ser Asp Arg Glu His Leu Lys Glu Arg Leu
            175                 180                 185

gcc aat gag ctt tcg gga ctg ccc aag gtg cgc ctg atc cgc gcc aac   689
Ala Asn Glu Leu Ser Gly Leu Pro Lys Val Arg Leu Ile Arg Ala Asn
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aag aga gag ggc ctg gtg cga gcc cgg ctg ctg ggg gcg tct gcg gcg   737
Lys Arg Glu Gly Leu Val Arg Ala Arg Leu Leu Gly Ala Ser Ala Ala
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agg ggc gat gtt ctg acc ttc ctg gac tgt cac tgt gag tgc cac gaa   785
Arg Gly Asp Val Leu Thr Phe Leu Asp Cys His Cys Glu Cys His Glu
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ggg tgg ctg gag ccg ctg ctg cag agg atc cat gaa gag gag tcg gca   833
Gly Trp Leu Glu Pro Leu Leu Gln Arg Ile His Glu Glu Glu Ser Ala
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gtg gtg tgc ccg gtg att gat gtg atc gac tgg aac acc ttc gaa tac   881
Val Val Cys Pro Val Ile Asp Val Ile Asp Trp Asn Thr Phe Glu Tyr
            255                 260                 265

ctg ggg aac tcc ggg gag ccc cag atc ggc ggt ttc gac tgg agg ctg   929
Leu Gly Asn Ser Gly Glu Pro Gln Ile Gly Gly Phe Asp Trp Arg Leu
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gtg ttc acg tgg cac aca gtt cct gag agg gag agg ata cgg atg caa   977
Val Phe Thr Trp His Thr Val Pro Glu Arg Glu Arg Ile Arg Met Gln
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tcc ccc gtc gat gtc atc agg tct cca aca atg gct ggt ggg ctg ttt   1025
Ser Pro Val Asp Val Ile Arg Ser Pro Thr Met Ala Gly Gly Leu Phe
300                 305                 310                 315

gct gtg agt aag aaa tat ttt gaa tat ctg ggg tct tat gat aca gga   1073
Ala Val Ser Lys Lys Tyr Phe Glu Tyr Leu Gly Ser Tyr Asp Thr Gly
                320                 325                 330

atg gaa gtt tgg gga gga gaa aac ctc gaa ttt tcc ttt agg atc tgg   1121
Met Glu Val Trp Gly Gly Glu Asn Leu Glu Phe Ser Phe Arg Ile Trp
            335                 340                 345

cag tgt ggt ggg gtt ctg gaa aca cac cca tgt tcc cat gtt ggc cat   1169
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gtt ttc ccc aag caa gct ccc tac tcc cgc aac aag gct ctg gcc aac   1217
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agt gtt cgt gca gct gaa gta tgg atg gat gaa ttt aaa gag ctc tac   1265
Ser Val Arg Ala Ala Glu Val Trp Met Asp Glu Phe Lys Glu Leu Tyr
380                 385                 390                 395

tac cat cgc aac ccc cgt gcc cgc ttg gaa cct ttt ggg gat gtg aca   1313
Tyr His Arg Asn Pro Arg Ala Arg Leu Glu Pro Phe Gly Asp Val Thr
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gag agg aag cag ctc cgg gac aag ctc cag tgt aaa gac ttc aag tgg   1361
Glu Arg Lys Gln Leu Arg Asp Lys Leu Gln Cys Lys Asp Phe Lys Trp
            415                 420                 425

ttc ttg gag act gtg tat cca gaa ctg cat gtg cct gag gac agg cct   1409
Phe Leu Glu Thr Val Tyr Pro Glu Leu His Val Pro Glu Asp Arg Pro
        430                 435                 440

ggc ttc ttc ggg atg ctc cag aac aaa gga cta aca gac tac tgc ttt   1457
Gly Phe Phe Gly Met Leu Gln Asn Lys Gly Leu Thr Asp Tyr Cys Phe
    445                 450                 455

gac tat aac cct ccc gat gaa aac cag att gtg gga cac cag gtc att   1505
Asp Tyr Asn Pro Pro Asp Glu Asn Gln Ile Val Gly His Gln Val Ile
460                 465                 470                 475

ctg tac ctc tgt cat ggg atg ggc cag aat cag ttt ttc gag tac acg   1553
Leu Tyr Leu Cys His Gly Met Gly Gln Asn Gln Phe Phe Glu Tyr Thr
                480                 485                 490

tcc cag aaa gaa ata cgc tat aac acc cac cag cct gag ggc tgc att   1601
Ser Gln Lys Glu Ile Arg Tyr Asn Thr His Gln Pro Glu Gly Cys Ile
            495                 500                 505

gct gtg gaa gca gga atg gat acc ctt atc atg cat ctc tgc gaa gaa   1649
Ala Val Glu Ala Gly Met Asp Thr Leu Ile Met His Leu Cys Glu Glu
        510                 515                 520

act gcc cca gag aat cag aag ttc atc ttg cag gag gat gga tct tta   1697
Thr Ala Pro Glu Asn Gln Lys Phe Ile Leu Gln Glu Asp Gly Ser Leu
    525                 530                 535

ttt cac gaa cag tcc aag aaa tgt gtc cag gct gcg agg aag gag tcg   1745
Phe His Glu Gln Ser Lys Lys Cys Val Gln Ala Ala Arg Lys Glu Ser
540                 545                 550                 555

agt gac agt ttc gtt cca ctc tta cga gac tgc acc aac tcg gat cat   1793
Ser Asp Ser Phe Val Pro Leu Leu Arg Asp Cys Thr Asn Ser Asp His
                560                 565                 570

cag aaa tgg ttc ttc aaa gag cgc atg tta tga agcctcgtgt atcaaggagc 1846
Gln Lys Trp Phe Phe Lys Glu Arg Met Leu  *
            575                 580

ccatcgaagg agactgtgga gccaggactc tgcccaacaa agacttagct aagcagtgac 1906
cagaacccac caaaaactag gctgcattgc tttgaagagg caatcatttt gccatttgtg 1966
aaagttgtgt tggatttagt aaaaatgtga ataagctttg tacttatttt gagaactttt 2026
taaatgttcc aaaataccct attttcaaag ggtaatcgta agatgttaac ccttggtatt 2086
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35 40 45
Glu Pro Gly Pro Pro Arg Thr Pro Arg Pro Gly Arg Arg Glu Pro Val
50 55 60
Met Pro Arg Pro Pro Val Pro Ala Asn Ala Leu Gly Ala Arg Gly Glu
65 70 75 80
Ala Val Arg Leu Gln Leu Gln Gly Glu Glu Leu Arg Leu Gln Glu Glu
85 90 95
Ser Val Arg Leu His Gln Ile Asn Ile Tyr Leu Ser Asp Arg Ile Ser
100 105 110
Leu His Arg Arg Leu Pro Glu Arg Trp Asn Pro Leu Cys Lys Glu Lys
115 120 125
Lys Tyr Asp Tyr Asp Asn Leu Pro Arg Thr Ser Val Ile Ile Ala Phe
130 135 140
Tyr Asn Glu Ala Trp Ser Thr Leu Leu Arg Thr Val Tyr Ser Val Leu
145 150 155 160
Glu Thr Ser Pro Asp Ile Leu Leu Glu Glu Val Ile Leu Val Asp Asp
165 170 175
Tyr Ser Asp Arg Glu His Leu Lys Glu Arg Leu Ala Asn Glu Leu Ser
180 185 190
Gly Leu Pro Lys Val Arg Leu Ile Arg Ala Asn Lys Arg Glu Gly Leu
195 200 205
Val Arg Ala Arg Leu Leu Gly Ala Ser Ala Ala Arg Gly Asp Val Leu
210 215 220
Thr Phe Leu Asp Cys His Cys Glu Cys His Glu Gly Trp Leu Glu Pro
225 230 235 240
Leu Leu Gln Arg Ile His Glu Glu Glu Ser Ala Val Val Cys Pro Val
245 250 255
Ile Asp Val Ile Asp Trp Asn Thr Phe Glu Tyr Leu Gly Asn Ser Gly
260 265 270
Glu Pro Gln Ile Gly Gly Phe Asp Trp Arg Leu Val Phe Thr Trp His
275 280 285
Thr Val Pro Glu Arg Glu Arg Ile Arg Met Gln Ser Pro Val Asp Val
290 295 300
Ile Arg Ser Pro Thr Met Ala Gly Gly Leu Phe Ala Val Ser Lys Lys
305 310 315 320
Tyr Phe Glu Tyr Leu Gly Ser Tyr Asp Thr Gly Met Glu Val Trp Gly

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Gly Glu Asn Leu Glu Phe Ser Phe Arg Ile Trp Gln Cys Gly Gly Val
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Leu Glu Thr His Pro Cys Ser His Val Gly His Val Phe Pro Lys Gln
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Ala Pro Tyr Ser Arg Asn Lys Ala Leu Ala Asn Ser Val Arg Ala Ala
    370                 375                 380
Glu Val Trp Met Asp Glu Phe Lys Glu Leu Tyr Tyr His Arg Asn Pro
385                 390                 395                 400
Arg Ala Arg Leu Glu Pro Phe Gly Asp Val Thr Glu Arg Lys Gln Leu
                405                 410                 415
Arg Asp Lys Leu Gln Cys Lys Asp Phe Lys Trp Phe Leu Glu Thr Val
            420                 425                 430
Tyr Pro Glu Leu His Val Pro Glu Asp Arg Pro Gly Phe Phe Gly Met
        435                 440                 445
Leu Gln Asn Lys Gly Leu Thr Asp Tyr Cys Phe Asp Tyr Asn Pro Pro
    450                 455                 460
Asp Glu Asn Gln Ile Val Gly His Gln Val Ile Leu Tyr Leu Cys His
465                 470                 475                 480
Gly Met Gly Gln Asn Gln Phe Phe Glu Tyr Thr Ser Gln Lys Glu Ile
                485                 490                 495
Arg Tyr Asn Thr His Gln Pro Glu Gly Cys Ile Ala Val Glu Ala Gly
            500                 505                 510
Met Asp Thr Leu Ile Met His Leu Cys Glu Glu Thr Ala Pro Glu Asn
        515                 520                 525
Gln Lys Phe Ile Leu Gln Glu Asp Gly Ser Leu Phe His Glu Gln Ser
    530                 535                 540
Lys Lys Cys Val Gln Ala Ala Arg Lys Glu Ser Ser Asp Ser Phe Val
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ggc cgg gag gcg ctg ttg gtg ctc ctg gcg cta ctg gcg ttg gcc ggg   96
Gly Arg Glu Ala Leu Leu Val Leu Leu Ala Leu Leu Ala Leu Ala Gly
            20                  25                  30

ctg ggc tcg gtg ctg cgg gcg cag cgt ggg gcc ggg gcc ggg gct gcc   144
Leu Gly Ser Val Leu Arg Ala Gln Arg Gly Ala Gly Ala Gly Ala Ala
        35                  40                  45

gag ccg gga ccc ccg cgc acc ccg cgc ccc ggg cgg cgc gag ccg gtc   192
Glu Pro Gly Pro Pro Arg Thr Pro Arg Pro Gly Arg Arg Glu Pro Val
    50                  55                  60
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atg ccg cgg ccg ccg gtg ccg gcg aac gcg ctg ggc gcg cgg ggc gag   240
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gcg gtg cgg ctg cag ctg cag ggc gag gag ctg cgg ctg cag gag gag   288
Ala Val Arg Leu Gln Leu Gln Gly Glu Glu Leu Arg Leu Gln Glu Glu
                85                  90                  95

agc gtg cgg ctg cac cag att aac atc tac ctc agc gac cgc atc tca   336
Ser Val Arg Leu His Gln Ile Asn Ile Tyr Leu Ser Asp Arg Ile Ser
            100                 105                 110

ctg cac cgc cgc ctg ccc gag cgc tgg aac ccg ctg tgc aaa gag aag   384
Leu His Arg Arg Leu Pro Glu Arg Trp Asn Pro Leu Cys Lys Glu Lys
        115                 120                 125

aaa tat gat tat gat aat ttg ccc agg aca tct gtt atc ata gca ttt   432
Lys Tyr Asp Tyr Asp Asn Leu Pro Arg Thr Ser Val Ile Ile Ala Phe
    130                 135                 140

tat aat gaa gcc tgg tca act ctc ctt cgg aca gtt tac agt gtc ctt   480
Tyr Asn Glu Ala Trp Ser Thr Leu Leu Arg Thr Val Tyr Ser Val Leu
145                 150                 155                 160

gag aca tcc ccg gat atc ctg cta gaa gaa gtg atc ctt gta gat gac   528
Glu Thr Ser Pro Asp Ile Leu Leu Glu Glu Val Ile Leu Val Asp Asp
                165                 170                 175

tac agt gat aga gag cac ctg aag gag cgc ttg gcc aat gag ctt tcg   576
Tyr Ser Asp Arg Glu His Leu Lys Glu Arg Leu Ala Asn Glu Leu Ser
            180                 185                 190

gga ctg ccc aag gtg cgc ctg atc cgc gcc aac aag aga gag ggc ctg   624
Gly Leu Pro Lys Val Arg Leu Ile Arg Ala Asn Lys Arg Glu Gly Leu
        195                 200                 205

gtg cga gcc cgg ctg ctg ggg gcg tct gcg gcg agg ggc gat gtt ctg   672
Val Arg Ala Arg Leu Leu Gly Ala Ser Ala Ala Arg Gly Asp Val Leu
    210                 215                 220

acc ttc ctg gac tgt cac tgt gag tgc cac gaa ggg tgg ctg gag ccg   720
Thr Phe Leu Asp Cys His Cys Glu Cys His Glu Gly Trp Leu Glu Pro
225                 230                 235                 240

ctg ctg cag agg atc cat gaa gag gag tcg gca gtg gtg tgc ccg gtg   768
Leu Leu Gln Arg Ile His Glu Glu Glu Ser Ala Val Val Cys Pro Val
                245                 250                 255

att gat gtg atc gac tgg aac acc ttc gaa tac ctg ggg aac tcc ggg   816
Ile Asp Val Ile Asp Trp Asn Thr Phe Glu Tyr Leu Gly Asn Ser Gly
            260                 265                 270

gag ccc cag atc ggc ggt ttc gac tgg agg ctg gtg ttc acg tgg cac   864
Glu Pro Gln Ile Gly Gly Phe Asp Trp Arg Leu Val Phe Thr Trp His
        275                 280                 285

aca gtt cct gag agg gag agg ata cgg atg caa tcc ccc gtc gat gtc   912
Thr Val Pro Glu Arg Glu Arg Ile Arg Met Gln Ser Pro Val Asp Val
    290                 295                 300

atc agg tct cca aca atg gct ggt ggg ctg ttt gct gtg agt aag aaa   960
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Ile Arg Ser Pro Thr Met Ala Gly Gly Leu Phe Ala Val Ser Lys Lys
305                 310                 315                 320

tat ttt gaa tat ctg ggg tct tat gat aca gga atg gaa gtt tgg gga   1008
Tyr Phe Glu Tyr Leu Gly Ser Tyr Asp Thr Gly Met Glu Val Trp Gly
                325                 330                 335

gga gaa aac ctc gaa ttt tcc ttt agg atc tgg cag tgt ggt ggg gtt   1056
Gly Glu Asn Leu Glu Phe Ser Phe Arg Ile Trp Gln Cys Gly Gly Val
            340                 345                 350

ctg gaa aca cac cca tgt tcc cat gtt ggc cat gtt ttc ccc aag caa   1104
Leu Glu Thr His Pro Cys Ser His Val Gly His Val Phe Pro Lys Gln
        355                 360                 365

gct ccc tac tcc cgc aac aag gct ctg gcc aac agt gtt cgt gca gct   1152
Ala Pro Tyr Ser Arg Asn Lys Ala Leu Ala Asn Ser Val Arg Ala Ala
    370                 375                 380

gaa gta tgg atg gat gaa ttt aaa gag ctc tac tac cat cgc aac ccc   1200
Glu Val Trp Met Asp Glu Phe Lys Glu Leu Tyr Tyr His Arg Asn Pro
385                 390                 395                 400

cgt gcc cgc ttg gaa cct ttt ggg gat gtg aca gag agg aag cag ctc   1248
Arg Ala Arg Leu Glu Pro Phe Gly Asp Val Thr Glu Arg Lys Gln Leu
                405                 410                 415

cgg gac aag ctc cag tgt aaa gac ttc aag tgg ttc ttg gag act gtg   1296
Arg Asp Lys Leu Gln Cys Lys Asp Phe Lys Trp Phe Leu Glu Thr Val
            420                 425                 430

tat cca gaa ctg cat gtg cct gag gac agg cct ggc ttc ttc ggg atg   1344
Tyr Pro Glu Leu His Val Pro Glu Asp Arg Pro Gly Phe Phe Gly Met
        435                 440                 445

ctc cag aac aaa gga cta aca gac tac tgc ttt gac tat aac cct ccc   1392
Leu Gln Asn Lys Gly Leu Thr Asp Tyr Cys Phe Asp Tyr Asn Pro Pro
    450                 455                 460

gat gaa aac cag att gtg gga cac cag gtc att ctg tac ctc tgt cat   1440
Asp Glu Asn Gln Ile Val Gly His Gln Val Ile Leu Tyr Leu Cys His
465                 470                 475                 480

ggg atg ggc cag aat cag ttt ttc gag tac acg tcc cag aaa gaa ata   1488
Gly Met Gly Gln Asn Gln Phe Phe Glu Tyr Thr Ser Gln Lys Glu Ile
                485                 490                 495

cgc tat aac acc cac cag cct gag ggc tgc att gct gtg gaa gca gga   1536
Arg Tyr Asn Thr His Gln Pro Glu Gly Cys Ile Ala Val Glu Ala Gly
            500                 505                 510

atg gat acc ctt atc atg cat ctc tgc gaa gaa act gcc cca gag aat   1584
Met Asp Thr Leu Ile Met His Leu Cys Glu Glu Thr Ala Pro Glu Asn
        515                 520                 525

cag aag ttc atc ttg cag gag gat gga tct tta ttt cac gaa cag tcc   1632
Gln Lys Phe Ile Leu Gln Glu Asp Gly Ser Leu Phe His Glu Gln Ser
    530                 535                 540

aag aaa tgt gtc cag gct gcg agg aag gag tcg agt gac agt ttc gtt   1680
Lys Lys Cys Val Gln Ala Ala Arg Lys Glu Ser Ser Asp Ser Phe Val
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545                 550                 555                 560

cca ctc tta cga gac tgc acc aac tcg gat cat cag aaa tgg ttc ttc   1728
Pro Leu Leu Arg Asp Cys Thr Asn Ser Asp His Gln Lys Trp Phe Phe
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Lys Glu Arg Met Leu  *
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Ile Val Val Asp Asp Gly Ser Glu Thr Asp Glu Thr Val Glu Ile Ala
        35                  40                  45
Glu Asp Tyr Leu Asp Glu Arg Ile Lys Glu Glu Asn Pro Arg Ile Ile
    50                  55                  60
Ile Val Ile Arg Leu Glu Glu Asn Ser Gln Gly Pro Ala Ala Ala Arg
65                  70                  75                  80
Asn Lys Gly Ile Arg Arg Ala Thr Gly Asp Ser Asp Tyr Ile Leu Phe
                85                  90                  95
Leu Asp Ala Asp Asp Ile Phe Thr Pro Asp Lys Leu Glu Lys Leu Ile
            100                 105                 110
Asp Tyr Ala Glu Ala Thr Asp Ala Ala Val Val Leu Gly Ala Ile Asp
        115                 120                 125
Ala Tyr Glu Tyr Ala Glu Gly Glu Ser Asn Leu Tyr Arg Ile Ala Arg
    130                 135                 140
Ala Asp Thr Glu Arg Ser Leu Phe Ala Gly Leu Leu Arg Lys Thr Gly
145                 150                 155                 160
Arg Leu Thr Gly Gly Leu Glu Leu Ser Phe Glu Ile Gly Ser Asn Ala
                165                 170                 175
Ile Tyr Arg Arg Glu Ala Phe Glu Glu Leu Phe
            180                 185
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Cys Leu Asp Val Asn Ser Ser Ser Glu Ser Asp Gly Asn Gln Val Gln
            20                  25                  30
Leu Trp Asn Cys His Ser Asn Pro Gly Lys Asn Gln Lys Trp Ser Leu
        35                  40                  45
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Thr Tyr Asp Glu Ser Asp Gly Glu Ile Arg Ser Val Val Asn Asn Asp
    50                  55                  60
Lys Cys Leu Thr Val Asn Ala Asn Ser Pro Gly Ser Glu Val Lys Leu
65                  70                  75                  80
Tyr Gln Cys Asp Ser Ala Thr Ser Asp Asn Gln Lys Trp Glu Leu Asn
                85                  90                  95
Asn Asp Gly Leu Ile Gly Asn Lys Ile Leu Leu Asn Leu Val Asn Thr
            100                 105                 110
Gly Leu Val Leu Asp Val Lys Gly Ser Asp Thr Gln Asn Gly Thr Lys
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Leu Ile Leu Tyr Thr Cys Ser Gly Gly Arg Asn Gln Gln Trp Leu Pro
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Thr
145
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            20                  25                  30
Trp Asp Cys His Gly Gly Gly Asn Gln Leu Trp Lys Leu Thr Tyr Asn
        35                  40                  45
Glu Ser Asp Gly Ala Ile Arg Ile Asn Ser Asp Leu Cys Leu Thr Val
    50                  55                  60
Asn Gly Thr Val Thr Leu Tyr Ser Cys Asp Gly Thr Asp Lys Gly Asn
65                  70                  75                  80
Asp Asn Gln Lys Trp Glu Val Asn Lys Asp Gly Thr Ile Arg Asn Pro
                85                  90                  95
Lys Asn Ser Lys Lys Gly Val Asp Ser Gly Leu Cys Leu Asp Val Lys
            100                 105                 110
Asp Gly Asn Lys Val Gln Leu Trp Thr Cys Asn Gly Ser Asp Ala Pro
        115                 120                 125
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    130                 135
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 1               5                  10                  15
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            20                  25                  30
Asn Lys Glu Tyr Phe Glu Glu Leu Gly Thr Tyr Asp Pro Gly Met Asp
        35                  40                  45
Ile Trp Gly Gly Glu Asn Leu Glu Leu Ser Phe Arg Val Trp Gln Cys
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50 55 60
Gly Gly Arg Leu Glu Ile Val Pro Cys Ser His Val Gly His Val Phe
65 70 75 80
Arg Lys Arg Ser Pro Tyr Thr Phe Pro Gly Lys Gly Ser Gly Lys Asp
85 90 95
Val Ile Ser Arg Asn Thr Val Arg Val Ala Glu Val Trp Met Asp Asp
100 105 110
Tyr Lys Glu Tyr Phe Tyr Lys His Asn Pro Gln Ala Arg Lys Val Arg
115 120 125
Asp Phe Gly Asp Ile Ser Glu Arg Lys Glu Leu Arg Glu Lys Leu Gln
130 135 140
Cys Lys Ser Phe Lys Trp Tyr Leu Glu Asn Val Tyr Pro Asp Leu Tyr
145 150 155 160
Val Pro Ala His Glu Pro
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<213> Mus musculus

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Tyr Ala Ser Pro Gly Ala Gly Gly Ala Arg Glu Leu Gly Pro Arg Arg
35 40 45
Leu Pro Asp Leu Asp Thr Arg Glu Glu Asp Leu Ser Gln Pro Leu Tyr
50 55 60
Ile Lys Pro Pro Ala Asp Ser His Ala Leu Gly Glu Trp Gly Arg Ala
65 70 75 80
Ser Lys Leu Gln Leu Asn Glu Gly Glu Leu Lys Gln Gln Glu Glu Leu
85 90 95
Ile Glu Arg Tyr Ala Ile Asn Ile Tyr Leu Ser Asp Arg Ile Ser Leu
100 105 110
His Arg His Ile Glu Asp Lys Arg Met Tyr Glu Cys Lys Ala Lys Lys
115 120 125
Phe His Tyr Arg Ser Leu Pro Thr Thr Ser Val Ile Ile Ala Phe Tyr
130 135 140
Asn Glu Ala Trp Ser Thr Leu Leu Arg Thr Ile His Ser Val Leu Glu
145 150 155 160
Thr Ser Pro Ala Val Leu Leu Lys Glu Ile Ile Leu Val Asp Asp Leu
165 170 175
Ser Asp Arg Ile Tyr Leu Lys Ala Gln Leu Glu Thr Tyr Ile Ser Asn
180 185 190
Leu Glu Arg Val Arg Leu Ile Arg Thr Asn Lys Arg Glu Gly Leu Val
195 200 205
Arg Ala Arg Leu Ile Gly Ala Thr Phe Ala Thr Gly Asp Val Leu Thr
210 215 220
Phe Leu Asp Cys His Cys Glu Cys Asn Thr Gly Trp Leu Glu Pro Leu
225 230 235 240
Leu Glu Arg Ile Ser Arg Asp Glu Thr Ala Ile Val Cys Pro Val Ile
245 250 255
Asp Thr Ile Asp Trp Asn Thr Phe Glu Phe Tyr Met Gln Thr Gly Glu
260 265 270
Pro Met Ile Gly Gly Phe Asp Trp Arg Leu Thr Phe Gln Trp His Ser
275 280 285
Val Pro Lys His Glu Arg Asp Arg Arg Thr Ser Arg Ile Asp Pro Ile
290 295 300

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Arg Ser Pro Thr Met Ala Gly Gly Leu Phe Ala Val Ser Lys Lys Tyr
305                 310                 315                 320
Phe Gln Tyr Leu Gly Thr Tyr Asp Thr Gly Met Glu Val Trp Gly Gly
                325                 330                 335
Glu Asn Leu Glu Leu Ser Phe Arg Val Trp Gln Cys Gly Gly Lys Leu
            340                 345                 350
Glu Ile His Pro Cys Ser His Val Gly His Val Phe Pro Lys Arg Ala
        355                 360                 365
Pro Tyr Ala Arg Pro Asn Phe Leu Gln Asn Thr Ala Arg Ala Ala Glu
    370                 375                 380
Val Trp Met Asp Glu Tyr Lys Glu His Phe Tyr Asn Arg Asn Pro Pro
385                 390                 395                 400
Ala Arg Lys Glu Ala Tyr Gly Asp Leu Ser Glu Arg Lys Leu Leu Arg
                405                 410                 415
Glu Arg Leu Lys Cys Lys Ser Phe Asp Trp Tyr Leu Lys Asn Val Phe
            420                 425                 430
Ser Asn Leu His Val Pro Glu Asp Arg Pro Gly Trp His Gly Ala Ile
        435                 440                 445
Arg Ser Met Gly Ile Ser Ser Glu Cys Leu Asp Tyr Asn Ala Pro Asp
    450                 455                 460
Asn Asn Pro Thr Gly Ala Asn Leu Ser Leu Phe Gly Cys His Gly Gln
465                 470                 475                 480
Gly Gly Asn Gln Phe Phe Glu Tyr Thr Ser Asn Lys Glu Ile Arg Phe
                485                 490                 495
Asn Ser Val Thr Glu Leu Cys Ala Glu Val Pro Gln Gln Lys Asp Tyr
            500                 505                 510
Val Gly Met Gln Asn Cys Pro Lys Asp Gly Leu Pro Val Pro Val Asn
        515                 520                 525
Ile Ile Trp His Phe Lys Glu Asp Gly Thr Ile Phe His Pro His Thr
    530                 535                 540
Arg Leu Cys Leu Ser Ala Tyr Arg Thr Ala Glu Gly Arg Pro Ser Val
545                 550                 555                 560
His Met Lys Thr Cys Asp Ala Leu Asp Lys Asn Gln Leu Trp Arg Phe
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Glu Lys
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<210> 9
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<212> PRT
<213> Artificial Sequence

<220>
<223> consensus

<221> VARIANT
<222> (1)...(22)
<223> Xaa = any amino acid

<400> 9
Leu Xaa Xaa Xaa Xaa Xaa Xaa Leu Xaa Xaa Xaa Xaa Xaa Xaa Leu Xaa
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Xaa Xaa Xaa Xaa Xaa Leu
            20
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